## REMARKS

Claims 1, 2, 4-11, 13 and 14 are pending. Claims 1 and 8 have been amended. No new matter has been added.

Claims 8-10 were rejected under 35 USC 112, first paragraph, as failing to comply with the written description requirement. Claim 8 has been amended to clarify that the detected optical beam is subjected to the wavelength conversion, as noted by the Examiner. This is clearly supported by the specification and shown in the drawings. For example, referring to Fig. 4, the detection position 33 detects the light L, which is the claimed "detected optical beam." This beam is then sent to the wavelength converter 35. Accordingly, Applicant respectfully requests that this rejection be withdrawn.

Claims 1-2, 4-11 and 13-14 were rejected under 35 USC 112, second paragraph, as being indefinite. This rejection is overcome in part, and traversed in part.

Applicant has amended claim 1 in accordance with the Examiner's suggestion to overcome the rejection of claim 1.

Referring to claims 8 and 11, the Examiner states that it is unclear how the bi-directional communication is accomplished. Applicant respectfully directs the Examiner to Fig. 5 and the description beginning on page 11, paragraph [0041], of the specification. The output of laser diode 7 passes through the optical fiber 11 to the print engine side 5. That is the light of wavelength $\lambda 1$. Referring to Fig. 4, this is the light which is emitted from the combiner 400, passes through the condensing lens 26, bounces off the optical scanning means, and is forms a latent image on the photosensitive layer 22 of the photosensitive drum 21. Part of the light reflected from the optical scanning means 27 is reflected by the SOS mirror 34 and detected at the detection position 33. That light is converted by the wavelength converter 35 and sent through the combiner 400 and back over the optical fiber 11. Referring again to Fig. 5, this is the light emitted from the wavelength converter 35 and labeled as $\lambda 2$. Thus, as shown in Fig. 5, light of a first wavelength $\lambda 1$ is transmitted in one direction over the optical fiber and light of a second wavelength $\lambda 2$ is transmitted

in the opposite direction over the optical fiber 11. Therefore, claims 8 and 11 are not indefinite and Applicant respectfully requests that this rejection be withdrawn.

Claims 1 and 4-7 were rejected under 35 USC 103(a) as being unpatentable over Minakuchi, U.S. Patent 5,838,001 in view of Phillips, U.S. Patent 6,584,052. This rejection is respectfully traversed.

As admitted by the Examiner, Minakuchi does not disclose transmitting the detected optical beam over the optical fiber. In fact, the optical fibers 121-128 are not bi-directional at all as can be clearly seen in Fig. 4 and the corresponding description.

The Examiner asserts that Phillips teaches an optical scanner in which the laser beam emitted by the laser source 38 and transmitted through an optical fiber 33 is reflected back to a photosensor 37 on the same optical fiber, which performs a bi-directional transmission of the optical signals (referring to Fig. 2A). The Examiner asserts that it would have been obvious to incorporate the bi-directional transmission optical fiber as taught by Phillips in the device of Minakuchi "to provide a routing means of the optical signal from the detected area to the signal generating means."

Phillips is directed to an optical scanner, not a printing device as in Minakuchi. The process of scanning an image is different than the process of printing an image. One of ordinary skill would not have been directed to modify a printing device based on the teachings of an optical scanner. The clear differences are evident upon review of Fig. 2A of Phillips, which is clearly a different process than the process disclosed in Minakuchi.

Merely because Phillips discloses an optical fiber in which light travels in both directions, would not have been adequate motivation to one of ordinary skill in the art to have made the optical fibers in Minakuchi bi-directional in order to send the signal from element 155 back to the semiconductor lasers. The general concept of a bi-directional cable is the only thing taught by Phillips which relates to the claimed invention. It is impermissible hindsight to suggest that Phillips and Minakuchi be combined as suggested by the Examiner to provide the claimed invention. Furthermore, neither Minakuchi or Phillips teach or even recognize the problems which arise using

a bi-directional optical fiber in a printing device, which are overcome according to the claimed invention. Merely making the optical fiber 121-128 bi-directional would render the device inoperable. There must be other accommodations made for sending the synchronizing signal back over the same optical fiber, and neither Phillips nor Minakuchi recognizes or addresses this issue. Therefore, even if the optical fiber of Minakuchi was made bi-directional, the device would not function without additional structure, the teaching of which is omitted from both of these references.

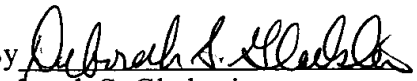
Accordingly, the features of claims 1 and 4-7 are neither taught nor suggested by Minakuchi, Phillips, or a combination thereof. Applicant requests that this rejection be withdrawn.

In view of the above, each of the presently pending claims in this application is believed to be in immediate condition for allowance. Accordingly, the Examiner is respectfully requested to withdraw the outstanding rejection of the claims and to pass this application to issue. If it is determined that a telephone conference would expedite the prosecution of this application, the Examiner is invited to telephone the undersigned at the number given below.

In the event the U.S. Patent and Trademark office determines that an extension and/or other relief is required, applicant petitions for any required relief including extensions of time and authorizes the Commissioner to charge the cost of such petitions and/or other fees due in connection with the filing of this document to Deposit Account No. 03-1952 referencing docket no. 325772025700.

Dated: November 21, 2003

Respectfully submitted,

By 

Deborah S. Gladstein
Registration No.: 43,636
MORRISON & FOERSTER LLP
1650 Tysons Blvd, Suite 300
McLean, Virginia 22102
(703) 760-7753

## AMENDMENTS TO THE CLAIMS

Claim 1 (currently amended). An image forming apparatus comprising:

an optical fiber;

a transmission device connected to the optical fiber, the transmission device transmitting optical signals over the optical fiber;

an optical scanning device connected to the optical fiber, the optical scanning device ~~emitting~~ scanning an optical beam emitted from an exit end of the optical fiber;

a synchronizing device connected to the optical fiber, the synchronizing device detecting the optical beam in a detection area, transmitting the detected optical beam over the optical fiber, and generating a synchronizing signal in response to the detected optical beam.

Claim 2 (previously presented). The image forming apparatus according to claim 1, further comprising a wavelength converting device converting a wavelength of the detected optical beam.

Claim 3 (canceled)

Claim 4 (previously presented). The image forming apparatus according to claim 1, wherein bi-directional communication is established over the optical fiber between the transmission device and the optical scanning device.

Claim 5 (original). The image forming apparatus according to claim 4, wherein the optical scanning device scans an object in an image area using the emitted optical beam.

Claim 6 (original). The image forming apparatus according to claim 5, further comprising a reflecting device reflecting the optical beam from an area adjacent the image area, the reflected optical beam being reflected to the detection area.

Claim 7 (original). The image forming apparatus according to claim 6, wherein the reflecting device is a SOS mirror.

Claim 8 (currently amended). An image forming apparatus comprising:

a transmission device sending optical signals over an optical fiber; and

an optical scanning device scanning an object using an optical beam emitted from the optical fiber, detecting the optical beam at a detection position provided outside an image region, and synchronizing a main scan direction based on the detected beam;

wherein ~~a synchronizing optical output of~~ the detected optical beam is subjected to a wavelength conversion by a wavelength converting device, and bi-directional communication is accomplished using the optical fiber transmitting the optical signals.

Claim 9 (original). The image forming apparatus according to claim 8, further comprising a reflecting device reflecting the optical beam from an area adjacent to the image region to the detection position.

Claim 10 (original). The image forming apparatus according to claim 9, wherein the reflecting device is a SOS mirror.

Claim 11 (original). An image forming apparatus comprising:

a transmission device sending optical signals over an optical fiber;

a synchronizing optical output device emitting a synchronizing optical output, wherein a synchronizing wavelength of the synchronizing optical output is different from a signal wavelength of the optical signals transmitted by the transmission device; and

an optical scanning device scanning an object using an optical beam emitted from the optical fiber, detecting the optical beam at a detection position outside an image region, detecting the synchronizing optical output, and synchronizing a main scan direction based on the detected synchronizing optical output;

wherein bi-directional communication is accomplished over the optical fiber transmitting the optical signals by the transmission device and the optical scanning device.

Claim 12. (canceled)

Claim 13 (previously presented). The image forming apparatus according to claim 11, further comprising a reflecting device reflecting the optical beam at the detection position, the reflected optical beam being reflected towards the optical scanning device.

Claim 14 (original). The image forming apparatus according to claim 13, wherein the reflecting device is a SOS mirror.